

AMENDMENTS TO THE CLAIMS

This is a complete and current listing of the claims, marked with status identifiers in parentheses. The following listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) A computer-readable recording medium, comprising:
an information area, the information area including a first region for a main data, and a second region for control information which controls recording or reproduction of the main data, said control information being encoded in wobbled pattern,
wherein said control information is recorded by bi-phase modulation method in such a manner that bit 0 and bit 1 are determined respectively depending on a transition in a direction within a predetermined period,
wherein one of the bit 0 and the bit 1 is represented by the transition at the start of low and in the middle of high and another one is represented by the transition in the opposite direction within the predetermined period.
2. (Previously Presented) The recording medium according to claim 1, wherein said control information is recorded in a lead-in zone of the information area of the recording medium.
3. (Cancelled)
4. (Currently Amended) The recording medium according to claim 2, wherein said control information is recorded in a permanent information & control (PIC) data area of the lead-in zone ~~defined in Blu-ray Disc (BD).~~
5. (Previously Presented) The recording medium according to claim 4, wherein the bit 0 is represented by the transition from low to high, while the bit 1 is represented by the transition from high to low.
6. (Currently Amended) The recording medium according to claim 1, wherein said control information is recorded in a permanent information & control (PIC) data area of the information area ~~defined in Blu-ray Disc (BD)~~ as part of disc information or independent of the disc

information.

7-13. (Cancelled)

14. (Previously Presented) The recording medium according to claim 1, wherein the information area further includes a third region for storing identification information to identify the presence or absence of the control information, said identification information is encoded in wobbled pattern by bi-phase modulation.

15. (Currently Amended) A method of forming a recording medium, comprising:
forming a first region for storing a main data;
forming a second region for control information which controls recording or reproduction of the main data; and
encoding the control information in wobbled pattern,
wherein said control information is encoded by bi-phase modulation method in such a manner that bit 0 and bit 1 are determined respectively depending on a transition in a direction within a predetermined period, and wherein one of the bit 0 and the bit 1 is represented by the transition at the start of low and in the middle of high and another one is represented by the transition in the opposite direction within the predetermined period.

16. (Previously Presented) The method according to claim 15, wherein said second region for said control information is in a lead-in zone of the information area of the recording medium.

17. (Cancelled)

18. (Currently Amended) The method according to claim 16, wherein said second region for said identification information identifying the presence or absence of the control information is in a permanent information & control (PIC) data area of the information area ~~defined in Blu-ray Disc (BD).~~

19. (Previously Presented) The method according to claim 18, wherein the bit 0 is

represented by the transition from low to high, while the bit 1 is represented by the transition from high to low.

20. (Currently Amended) The method according to claim 15, wherein said second region for said control information is in a permanent information & control (PIC) data area of the information area ~~defined in Blu-ray Disc (BD)~~ as part of disc information or independent of the disc information.

21-27. (Cancelled)

28. (Previously Presented) The method according to claim 15, further comprising:
forming a third region for identification information to identify the presence or absence of the control information,
wherein said identification information is encoded in wobbled pattern by bi-phase modulation.

29. (Currently Amended) A method of reproducing data from a recording medium, comprising:

utilizing control information which controls reproduction of a main data, to reproduce the data, the control information being encoded in wobbled pattern, said control information being encoded by bi-phase modulation method in such a manner that bit 0 and bit 1 are determined respectively depending on a transition in a direction within a predetermined period, wherein one of the bit 0 and the bit 1 is represented by the transition at the start of low and in the middle of high and another one is represented by the transition in the opposite direction within the predetermined period, and

wherein the utilizing step includes a step of decoding the control information by a demodulation method.

30. (Previously Presented) The method according to claim 29, wherein said control information is recorded in a lead-in zone of the information area of the recording medium, and
wherein the utilizing step includes a step of reading the control information in the lead-in zone.

31. (Cancelled)

32. (Currently Amended) The method according to claim 30, wherein said control information is recorded in a permanent information & control (PIC) data area of the lead-in zone ~~defined in Blu-ray Disc (BD)~~, and

wherein the reading step reads the control information in the PIC data area.

33. (Previously Presented) The method according to claim 32, wherein the bit 0 is represented by the transition from low to high, while the bit 1 is represented by the transition from high to low, and

wherein the decoding step decodes the bit 0 or 1 by identifying the transition direction.

34. (Currently Amended) The method according to claim 29, wherein said control information is recorded in a permanent information & control (PIC) data area ~~defined in Blu-ray Disc (BD)~~ as part of disc information or independent of the disc information, and

wherein the utilizing step includes a step of reading the control information as part of disc information or independent of the disc information.

35-41. (Cancelled)

42. (Previously Presented) The method according to claim 29, wherein the utilizing step includes a step of utilizing identification information to identify the presence or absence of the control information, said identification information being encoded in wobbled pattern by bi-phase modulation.

43-56. (Cancelled)

57. (Currently Amended) An apparatus for reproducing data from a recording medium, comprising:

a signal detector to detect control information which controls reproduction of a main data, [[.]] to reproduce the data, the control information being encoded in wobbled pattern, said

control information being encoded by bi-phase modulation method in such a manner that bit 0 and bit 1 are determined respectively depending on a transition in a direction within a predetermined period, wherein one of the bit 0 and the bit 1 is represented by the transition at the start of low and in the middle of high and another one is represented by the transition in the opposite direction within the predetermined period; and

a signal processor, coupled to the signal detector, to decode the control information by a demodulation method.

58. (Previously Presented) The apparatus according to claim 57, wherein said control information is recorded in a lead-in zone of the information area of the recording medium, and wherein the signal detector detects the control information in the lead-in zone.

59. (Cancelled)

60. (Currently Amended) The apparatus according to claim 58, wherein said control information is recorded in a permanent information & control (PIC) data area ~~defined in Blu-ray Disc (BD)~~, and

wherein the signal detector detects the control information in the PIC data area.

61. (Previously Presented) The apparatus according to claim 60, wherein the bit 0 is represented by the transition from low to high, while the bit 1 is represented by the transition from high to low, and

wherein the signal processor decodes the bit 0 or 1 by identifying the transition direction.

62. (Currently Amended) The apparatus according to claim 57, wherein said control information is recorded in a permanent information & control (PIC) data area ~~defined in BD (Blu-ray Disc)~~ as part of disc information or independent of the disc information,

wherein the signal detector detects the control information as part of disc information or independent of the disc information.

63-69. (Cancelled)

70. (Previously Presented) The apparatus according to claim 57, wherein the signal processor identifies the presence or absence of the control information based on identification information, said identification information being encoded in wobbled pattern by bi-phase modulation.

<End of Claims Listing>